UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DENNIS S. FERNANDEZ

Appeal 2007-2847
Application 10/626,877
Technology Center 3600

Decided: October 31, 2007

Before TERRY J. OWENS, JENNIFER D. BAHR, and LINDA E. HORNER, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant seeks our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 1-20, all the claims currently pending in the application. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

SUMMARY OF DECISION

We AFFIM-IN-PART

THE INVENTION

Appellant's claimed invention is to a telematic method and apparatus with an integrated power source (Specification 2:7-8). Claims 1, 12, and 13, reproduced below, are representative of the subject matter on appeal.

1. Vehicle power and telematic control system comprising:
an electronic controller;
a fuel cell module; and
a telematic appliance,
wherein the electronic controller couples electrical power from the fuel cell module adaptively to the telematic appliance, a software being run by the controller to manage the power adaptively by redistributing such power reactively or proactively according to a determined load ratio, or power usage proportion.

12. Vehicle power and telematic control method comprising steps of:
coupling an electronic controller to a fuel cell module and a telematic appliance; and
controlling adaptively by the electronic controller the fuel cell module electrical power to generate electrical power for the telematic appliance, a software being run by the controller to control the power adaptively by redistributing such power reactively or proactively according to a determined load ratio, or power usage proportion.

13. Automotive electrical apparatus comprising:
a multi-level voltage source; and

> a telematic system, coupled to the multi-level voltage unit for accessing a first and second voltage source, a software being run to manage the voltage source adaptively by redistributing power of such voltage source reactively or proactively according to a determined load ratio, or power usage proportion.

THE REJECTIONS

The Examiner relies upon the following evidence in the rejections:

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The following rejections are before us for review:

1.Claims 1, 2, 4-11, 13, and 15-20 stand rejected under 35 U.S.C. § 102(e) as anticipated by Cramer.

2.Claims 3 and 14 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Cramer.

3.Claim 12 stands rejected under 35 U.S.C. § 102(e) as anticipated by Cramer or, in the alternative, under 35 U.S.C. § 103(a) as unpatentable over Cramer.

ISSUES

Appellant contends that "Cramer does not teach nor [*sic*] suggest the adaptive power redistribution according to a determined load ratio or power usage proportion" (Appeal Br. 7) and the Examiner "has not provided a basis in fact and/or technical reasoning to support the determination that the central controller and CAN's of Cramer et al. in Fig. D10 and the associated texts, *inherently* comprises software…designed to manage power adaptively by redistributing such

power reactively or proactively according to a determined load ratio or power usage proportion" (Reply Br. 9) (emphasis in original). The Examiner found that Cramer's controller 320 adaptively manages power via a Computer Area Network 324 which inherently "comprises software that is responsive to various criteria needed to manage power in the vehicle as disclosed in paragraphs [0311], [0312], [0317], [0318], [0332], [0333] and [0338] of Cramer" (Answer 10). The Examiner further held, with regard to claim 12, that "[b]ecause the prior art discloses all the structure necessary to perform the claimed functions, one of ordinary skill in the art would find the claimed method to be an obvious step in light of the disclosed structures of the reference of Cramer" (Answer 9).

The issues before us are:

1. Whether Appellant as shown that the Examiner erred in rejecting claims 1, 2, 4-11, 13, and 15-20 as anticipated by Cramer.

2.Whether Appellant has shown that the Examiner erred in rejecting claims 3 and 14 as unpatentable over Cramer.

3.Whether Appellant has shown that the Examiner erred in rejecting claim 12 as anticipated by Cramer or, in the alternative, as unpatentable over Cramer.

FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1.Appellant's Specification defines "adaptively" to mean "any function that responds, adjusts, aligns, or corrects reactively to environmental, context, control or data signal, pattern, or other stimuli or feedback, or predicts or extrapolates proactively according to prior or current environmental, context, control or data signal, pattern or other stimuli or feedback" (Specification 30:13-21).

2.The powertrain system of Cramer uses a network of switches to manage power distribution between the fuel cell 110, load-leveling devices (LLD) 100 & 101, an accessory power supply, and propulsion motors. The network of switches is managed by incorporating driver input with the state of each motor and associated controller, LLD, fuel-cell system, and accessory loads (Cramer ¶ 266).

3.Power converter 131 connects to a dc/dc converter 132 that delivers power onto the vehicle's low-voltage battery 133 and power bus 139. Power bus 139 supplies non-traction electrical power (for accessories such as lights, air conditioning fan, door locks, and entertainment systems). Although the example of Fig. CR3 shows low-voltage power bus 139 as a 42 volt bus, this voltage could be set at any other level as required by a specific vehicle design (Cramer ¶ 268 and Fig. CR3).

4.Switch 131B controls three states of connectivity between fuel cell 110 and load-leveling batteries LLD 100 and 101: (1) charging the load-leveling batteries LLD 100 and 101 through dc/dc converter 131A; (2) connected directly to LLD 100 and 101; and (3) not connected to LLD 100 and 101. When connected directly, the system acts as a common bus where the output voltage of fuel cell 110 and LLD 100 and 101 must be the same (Cramer ¶ 271 and Fig. CR3).

5.Fuel cell 110 supplies dc/dc converter 131A with up to 5.5 kW in a voltage range of about 175 V to 245 V. At zero load the dc/dc converter sees an input voltage of approximately 280 V (Cramer ¶ 269).

6.The output voltage of dc/dc converter 131A to the high power bus sees the voltage of the traction battery, which also ranges from 175 V to 275 V (Cramer ¶270).

7.The control system and information management architecture includes: (1) a central controller 320; (2) a body controller 321; (3) a vehicle dynamics controller 323; (4) a telematics controller 322; (5) several task-specific multiplexed networks; (6) a high-speed backbone that connects the main functional controllers; and (7) several component controllers distributed throughout the car (Cramer ¶ 338 and Fig. D10).

8.Telematics control wiring 318 connects to the telematics controller card slot 273 of the central controller of Fig. D1. The telematics control wiring connects antennae 318A to slot 273 (Cramer ¶ 344 and Fig. D8).

9.The central controller controls the user display, performs vehicle-level diagnostics, manages vehicle data storage (both on-board and off-board through the telematics controller), and has the capability to run add-on applets (Cramer ¶ 348).

10.Cramer does not disclose that the central controller or telematics controller is configured to manage or redistribute power between the fuel cell 110 and the dc/dc converter 132 that delivers power to a telematic appliance via low-voltage bus 139 according to a determined load ratio or power usage proportion.

PRINCIPLES OF LAW

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 827 (1987).

"It is well settled that a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it. Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates." *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002) (citations and internal quotation marks omitted). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) (citations and internal quotation marks omitted).

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and (3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18. *See also KSR*, 127 S.Ct. at 1734 ("While the

sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.") The Court in *Graham* further noted that evidence of secondary considerations "might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." 383 U.S. at 17-18.

ANALYSIS

Rejection of claims 1, 2, 4-11, 13, and 15-20 as anticipated by Cramer

Appellant argues claims 1, 2, and 4-11 as a group (Appeal Br. 6-7). We select claim 1 as a representative claim and the remaining claims 2 and 4-11 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2006).

In order to determine the patentability of claim 1 over Cramer, the claim must be interpreted to ascertain its proper scope and/or meaning. In interpreting claim language, we apply the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). *See also In re Sneed*, 710 F.2d 1544, 1548 (Fed. Cir. 1983). We decline to unnecessarily import examples from the Specification into the claims. *See Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) ("Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim. For example, a particular embodiment

appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.") It is Appellant's burden to precisely define the invention. *See In re Morris*, 127 F.3d 1048, 1056 (Fed. Cir. 1997).

Claim 1 recites a vehicle power and telematic control system that includes, *inter alia*, an electronic controller that couples electrical power from a fuel cell module adaptively to a telematic appliance and software being run by the controller to manage the power adaptively by redistributing such power reactively or proactively according to a determined load ratio or power usage proportion. Appellant's Specification defines the term *adaptively* to mean any function that responds, adjusts, aligns, or corrects reactively to environmental, context, control or data signal, pattern, or other stimuli or feedback, or predicts or extrapolates proactively according to prior or current environmental, context, control or data signal, pattern or other stimuli or feedback (Finding of Fact 1). Therefore, in order for Cramer to anticipate claim 1, Cramer must disclose, at least, an electronic controller that is configured to redistribute the power from a fuel cell to a telematic appliance according to a determined load ratio or power usage proportion.

Cramer discloses that the powertrain system uses a network of switches to manage power distribution between the fuel cell 110, load-leveling devices LLD 100 & 101, accessory power supply, and propulsion motors (Finding of Fact 2). The network of switches is managed by incorporating driver input with the state of each motor and associated controller, load-leveling device, fuel-cell system, and accessory loads (Finding of Fact 2). Cramer further discloses that switch 131B controls three states of connectivity between fuel cell 110 and LLD 100 and 101:

(1) charging LLD 100 and 101 through dc/dc converter 131A; (2) connected directly to LLD 100 and 101; and (3) not connected to LLD 100 and 101 (Finding of Fact 4). However, Cramer does not disclose any redistribution of the connection between fuel cell 110 and the dc/dc converter 132 that delivers power to the low-voltage bus 139 (Finding of Fact 10).

Although Cramer discloses that the central controller controls the user display, performs vehicle-level diagnostics, manages vehicle data storage (both on-board and off-board through the telematics controller), and has the capability to run add-on applets, Cramer does not disclose that the central controller or telematics controller is configured to redistribute power between the fuel cell and a telematic appliance according to a determined load ratio or power usage proportion (Findings of Fact 9 and 10). As such, Cramer fails to disclose each and every claimed element. Therefore, we cannot sustain the Examiner's rejection of claims 1, 2, and 4-11 as anticipated by Cramer.

Appellant argues claims 13 and 15-20 as a group (Appeal Br. 7-8). We select claim 13 as a representative claim and the remaining claims 15-20 stand or fall with claim 13. 37 C.F.R. § 41.37(c)(1)(vii) (2006).

Appellant contends that "Cramer's digital power manager that controls high-power switches to dynamically allocate battery or fuel-cell power only pertains to [the] powertrain system, i.e., for powering and braking each wheel, but not for providing power to any telematic appliance" as claimed (Appeal Br. 7). We disagree.

Independent claim 13 defines an automotive electrical apparatus. The apparatus comprises a multi-level voltage source and a telematic system coupled to the multi-level voltage unit for accessing a first and second voltage source, and software being run to manage the voltage source adaptively by redistributing power of such voltage source reactively or proactively according to a determined load ratio or power usage proportion. Accordingly, we find that claim 13 requires adaptive power management only of the multi-level voltage source, not adaptive power management between the voltage source and a telematic system as Appellant contends.

Cramer discloses that the power converter 131 connects to a dc/dc converter 132, which delivers power onto the vehicle's low-level battery 133, and power bus 139, which supplies electrical power for accessories such as lights, air conditioning fan, door locks, and entertainment systems (Finding of Fact 3). The power converter 131 is coupled to fuel cell 110, which provides up to 5.5 kW in a voltage range of about 175 V to 245 V to the converter 131 (Finding of Fact 5). Therefore, the fuel cell 110 is equivalent to the claimed multi-level voltage source. Furthermore, Cramer discloses managing the power from the fuel cell 110 using a network of switches based on the state of each motor and associated controller, LLD, fuel-cell system, and accessory loads (Finding of Fact 2). Therefore, we sustain the Examiner's rejection of claims 13 and 15-20.

Rejection of claims 3 and 14 as unpatentable over Cramer

Appellant contends that claims 3 and 14 are patentable over Cramer for the reasons presented with respect to claims 1 and 13, respectively (Appeal Br. 8). We find that Cramer (1) fails to disclose an electronic controller having software configured to redistribute the power between a fuel cell and a telematic appliance according to a determined load ratio or power usage proportion as recited in claim 1 and (2) discloses a multi-level voltage source and software to manage the voltage source adaptively by redistributing power as recited in claim 13 for the reasons presented *supra*. As such, we sustain the Examiner's rejection of claim 14, but cannot sustain the Examiner's rejection of claim 3.

Rejection of claim 12 as anticipated by Cramer or, in the alternative, as unpatentable over Cramer

Appellant contends that (1) a person of ordinary skill in the art would not construe Cramer's system to inherently operate "by calculating load ratio or power usage proportion because load ratio calculations or power usage proportion may not be desirable in some situations" (Appeal Br. 9); and (2) "[t]he fact that Cramer discloses the structure necessary to perform the claim function does not imply that one of ordinary skill in the art would find the claimed method to be an obvious step in light of the disclosed structures of the reference. . . because load ratio calculations and power usage proportions may not be desirable under certain conditions" (Appeal Br. 10). We disagree.

Independent claim 12 defines a vehicle power and telematic control method. The method includes, *inter alia*, controlling adaptively by an electronic controller the fuel cell module electrical power by redistributing such power reactively or

proactively according to a determined load ratio or power usage proportion. Cramer discloses managing the power from the fuel cell 110 using a network of switches based on the state of each motor and associated controller, LLD, fuel-cell system, and accessory loads (Finding of Fact 2). Accordingly, Cramer discloses adaptively managing the electrical power from the fuel cell based on load calculations or power usage proportions. As such, we sustain the Examiner's rejection of claim 12 as anticipated by Cramer. We further sustain the Examiner's alternative rejection of claim 12 as unpatentable over Cramer, since anticipation is the epitome of obviousness. *See In re Pearson*, 494 F.2d 1399, 1402, 181 USPQ 641, 644 (CCPA 1974) (A disclosure that anticipates under 35 U.S.C. § 102 also renders the claim unpatentable under 35 U.S.C. § 103, for anticipation is the epitome of obviousness).

CONCLUSIONS OF LAW

We conclude that Appellant has shown that the Examiner erred in rejecting claims 1, 2, and 4-11 as anticipated by Cramer and claim 3 as unpatentable over Cramer. We further conclude that Appellant has not shown that the Examiner erred in rejecting claims 12, 13, and 15-20 as anticipated by Cramer and claims 12 and 14 as unpatentable over Cramer.

DECISION

The Examiner's decision to reject claims 1, 2, and 4-11 under 35 U.S.C. § 102(e) as anticipated by Cramer and claim 3 under 35 U.S.C. § 103(a) as unpatentable over Cramer is reversed. The Examiner's decision to reject claims

12, 13, and 15-20 as anticipated by Cramer, and claims 12 and 14 as unpatentable over Cramer is sustained.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED-IN-PART

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Fernandez & Associates, LLP
PO Box D
Menlo Park CA 94026-6402